

The "Management Cluster"

by CARL DIEM

In the construction of sporting centres theory has not kept pace with practical demands. Scientific works in this field deal comprehensively with the technical aspects of the individual sporting establishments and the general principles upon which they are organized, but they do not pay enough attention to the internal organism of larger sporting centres and up to the present time have failed to analyse the developments which have come about as a result of modern technical advancement. Nevertheless, a study of the literature in this field is indispensable in the planning of new centres. I should not emphasize this fact had I not observed errors in even the newest constructions. Architects entrusted with the planning of such projects and perhaps also their employers usually make a tour of investigation in order to study other similar establishments and have them explained by their constructors. Since architects are seldom willing to acknowledge constructional errors in their own works, particularly those which for architectonic reasons appear to be necessary, such tours are not always beneficial. In such cases detailed information must be obtained from those who manage and utilize these centres. To one who is intimately acquainted with modern sporting projects the origin of both errors and advantages is easily ascertained, since not only the general architecture of such centres but also constructional and technical errors are passed on from builder to builder.

By way of a single example I should like to call attention to the Prater Stadium in Vienna. The municipal construction authorities in this case applied the conditions for theatrical buildings and demanded an increased number of entrances and staircases, a requirement which would be entirely justified for dealing with fire and panic in a theatre. The architects had no recourse other than to have the additional staircases and entrances open into the arena, and the stadium management could then point with pride to the remarkably short time necessary for emptying the stadium. This advantage devised by the architects by force of necessity is completely useless from a practical point of view since the spectators do not need to leave the stadium with such rapidity, and the time gained in reaching the street is again lost through waiting for means of transportation. In addition thereto, unpleasant jams result outside the stadium.

The builders of other stadia modelled after that of Vienna were attracted by the fact that it could be emptied so quickly, and a series of such structures came into existence. It is to be hoped, however, that the new Ankara stadium will be the last of these. In this case the architect, without realizing the reason for the origin of this system, had the stairways and entrances open into the arena so that the rows of seats were unnecessarily separated from the field and broken by the stairways. Such unfavourable architectural inheritances could be avoided through a study of the literature dealing with this subject and an investigation of their practical application. No stadium should be built at the present day the stands of which are not arranged in oval shape, this applying also to swimming stadia; nor should any arena exceed a maximum size, i. e., the running track should not be more than 400 metres in length. Also, every new track should be constructed with the so-called basket-curve or the form used in the Berlin Stadium, and finally, every arena should be encompassed by a sunken passageway. In fact, the question should be considered in the construction of each new stadium as to whether the arena and half of the spectator stands should not be below ground level (as, for example, the stadia of Los Angeles and Berlin). This system enables the stadium to be filled and emptied in one-half of the time usually required. Another factor, namely that of draughts and wind currents in the arena, must always be studied in the construction of such sunken stadia, particularly when the horseshoe form is selected for the upper ring of stands. Every stadium should be built with a sufficient angle of elevation for the concentric rows of seats, and the constructor should demand from his architect lines of vision not only for the stadium as a whole but for each protruding section (loges of honour, press box, etc.). It will then be seen that the elevation of the higher rows of seats must be greater, as in the case of the Berlin Stadium, in which the 71 rows of seats increase in elevation from 8 to 20 inches.

This aspect of such constructions, however, has been clarified to such an extent that with necessary precautions no errors will be made. More difficult is the planning of a sporting centre from the point of view of technical operation. The profit and the operation expenses depend upon numerous technical problems that must be correctly solved, and it is therefore the duty of the contractor to explain to the architect the exact purpose of the sporting centre. In the case of the stadium, the following questions arise: Is the stadium to be used only for competitions or also for daily training? If it is to be utilized for competition alone, can it exist for this purpose only, as is the case of the English professional football grounds? And finally, can the stadium be regarded as a separate unit about which the general public is able to move without hindrance? If it is to be combined with other training sites to form a general sporting centre, some sort of

organic connection with these is desirable, and where this applies, the stadium should not be separated from the rest of the grounds by a public street but should form part of an organized unit, as in the case of the Reich Sport Field in Berlin. In such cases it is naturally impossible for the general public to move freely about the stadium. In Berlin, half of the ground surrounding the stadium is connected with the public streets while the other half forms part of the Reich Sport Field and is thus closed off to the general public.

If the stadium is to constitute part of a general sporting centre, there is the question as to whether it will be required for daily training. This will naturally be necessary if no other running track is available, but there is no reason why the stadium should not be used for such purposes, as a cinder running track can be used indefinitely if properly cared for. The grass-covered arena is naturally less durable, but even it does not require constant protection and care. Should the stadium be used for training purposes in conjunction with other fields separated from it, a connection with the dressing and shower rooms must be established and unobstructed passageways provided between these and the different training sites.

A further problem concerns the sightseeing tours of the stadium when no particular presentation is in progress, since a tour of inspection requires different arrangements from those necessary for spectators. Another important factor in the general arrangements of the stadium is the system which is to be utilized in selling seats; whether a uniform price should be charged as in America or a graded scale of prices as in Germany. If the latter system is employed, a method must be devised to prevent holders of low priced tickets from changing to more expensive seats.

Yet another question deserving special consideration from the point of view of general appearance as well as utilization, and one which must be decided by the contractor, is whether he intends to employ the block or the circulation system. The block system is commonly used at the English professional football grounds, while the circulation system is employed, for example, in the Berlin Stadium. The block system has the advantage of avoiding confusion among the spectators and of requiring a minimum number of control officials, this making it admirably adapted to football matches. The circulation system, on the other hand, enables the spectator to move about freely within the stadium grounds and to meet acquaintances. It is also more satisfactory for presentations which continue for any length of time, and tends to lend a more festive character to the entire stadium. The grounds of the Berlin Stadium inside the box offices comprise 72 000 square metres, this being twice as much as the area covered by the stands. In the case of English stadiums, there is often adequate space outside the box offices, this being true, for example, of the Wimbledon Stadium. The visitor thus moves around the stadium to the section which suits his pocket book or one which is not sold out. Each section is provided with its own ticket office, and after purchasing his ticket the visitor passes through the gates into his block, i. e., he passes along a fenced-in passageway and under his particular block to the opening which leads to his seat. The different blocks are separated by fences resembling to some extent those of a zoological garden. This system necessitates practically no ticket control or ushering. In the Berlin Stadium the ticket offices (80 for 100 000 spectators) are located at two points, and the visitor, after having passed through the entrance gate, arrives in the aforementioned stadium grounds, over which he proceeds to the steps leading to his particular section. The first control is located here, the second being inside the stadium at the different blocks of seats. Such a system is necessary since in order not to disturb the general festive appearance no clearly defined division between the different price categories has been made, and in view of the fact that seats may be easily changed, a number of officials and reserves must always be on hand.

In deciding between the block and the circulation system, still another factor must be taken into consideration. The block system requires that complete equipment for all the needs of the spectator be provided in each block, these including refreshment stands, post office facilities, shower rooms and first aid equipment. It must be borne in mind that on the occasion of important events, particularly those which cover several days or are continuous from morning till evening, the demands on the part of the spectators are considerable. The necessities on such occasions include, for example, a post office, a large refreshment centre and a number of smaller stands for photographic material, literature, souvenirs, etc., and such facilities cannot always be divided up into individual units or stands for each block. This problem is considerably simplified through the circulation system, since all of the stands can be concentrated in the grounds outside the stadium and thus made available to every spectator. The block system, on the other hand, renders this impossible since the stands would have to be placed beyond the ticket offices and entrance gates, and would thus be unavailable to the spectators after they had entered the stadium. The less satisfactorily the question of selling the aforementioned objects within the stadium grounds themselves is solved, the more pronounced becomes the scarcely desirable street selling in front of the ticket offices.

After having provided centrally located stands within the stadium grounds, it is still advisable to establish small auxiliary stands inside the blocks to deal with the immediate needs of the public while the events

are in progress. Furthermore, three groups must be provided with special entrances and special facilities for supplying their wants: the active participants, guests of honour and the press. In the case of the circulation system, the possibility of a subterranean passageway such as that in the Berlin Stadium should be considered. Particularly important are the requirements of the participants, who must be spared from every contact with the spectators before and after the competitions. Should this be otherwise impossible, the advantages of the circulation system can still be retained if a special passageway and entrance are provided for these three groups, perhaps on a curve. This consideration naturally depends upon the problem of the active participants and becomes particularly acute in presentations in which a considerable number engage. The normal arena of a stadium permits of mass assemblies of up to 30 000 and free exercises by 10 000, although if the stadium is to be used for such purposes a wide entrance gate and an adequate assembly space outside the stadium are necessary.

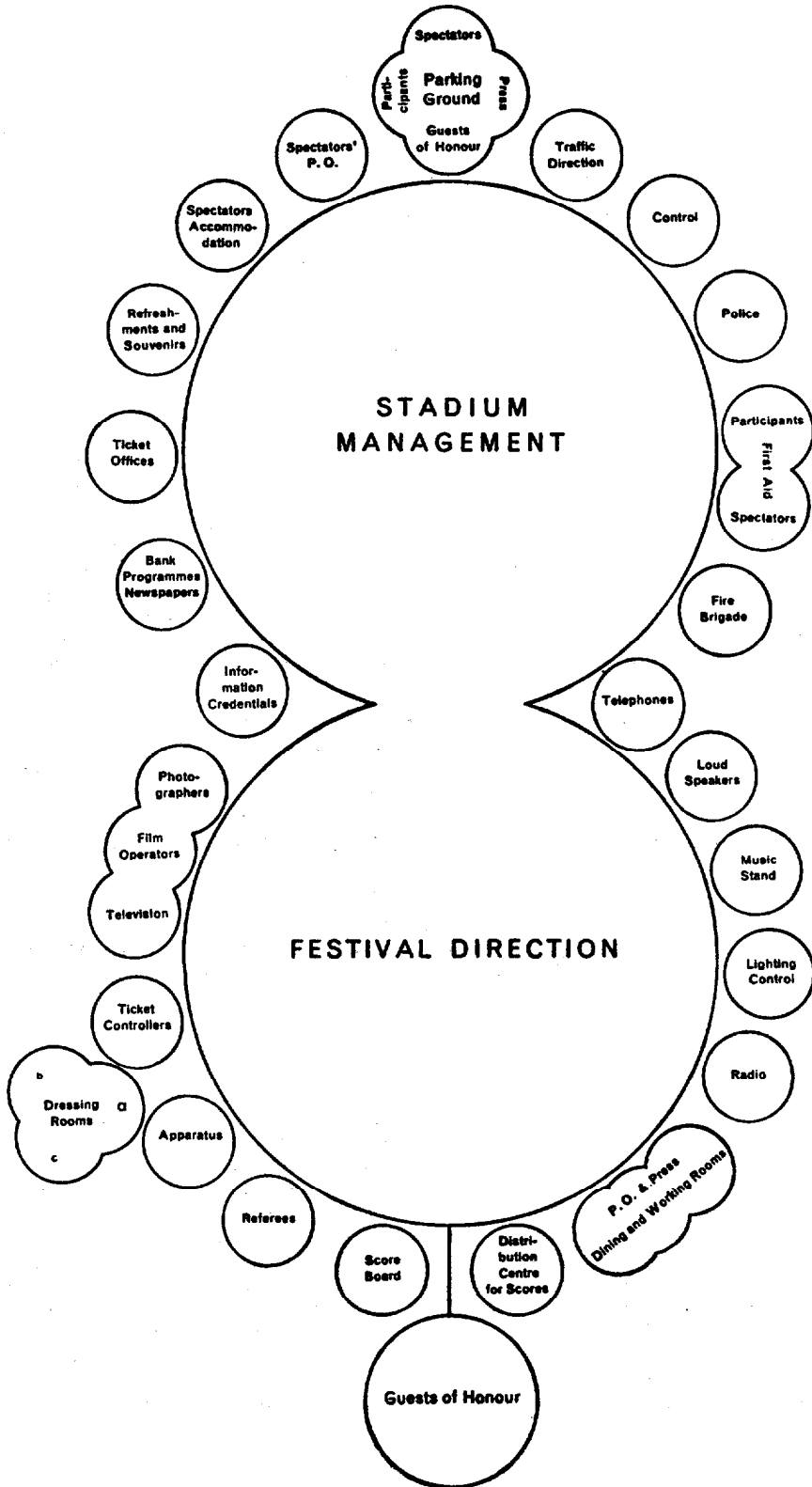
The arranging of entrance conveniences also implies a solution of the traffic and transportation problem. The principal stadium should be so located that each transportation system will have its own approach and departure, the latter being best arranged through overhead crossings. Special sidings and stopping places for railways, trams, omnibusses, private cars, taxicabs and cyclists should be provided as well as parking facilities for each group so that all can depart without congestion. This latter can be completely achieved only through overhead crossings.

The presentation of a major sporting festival in a stadium today requires extensive technical equipment and arrangements which are best controlled from one point. I shall designate this as the "management cluster" because all of the control centres should be connected in an interlinking manner resembling a cluster of grapes. A modern stadium must therefore be provided with a control centre for the general management and also the festival directing staff. Orders and instructions are sent from here to all parts of the premises and for this reason telephone connections with every scene of activity must be furnished as well as direct communication with the most important points. It goes without saying that this control centre must maintain close connections with the participants, referees; press and guests of honour, and it is therefore advisable to locate it in the midst of the spectator stands; when possible, above the loge of the guests of honour and that of the referees, and to provide access from one to the other through a system of lifts or at least by means of direct staircases.

The stadium management and the festival directing staff should divide their tasks in such a manner that the stadium management performs the outer service and the festival directing staff the inner. The stadium management thus takes charge of the sale of admission tickets, programmes, etc., and in this connection requires a means of communication with the accounting office and through this with the ticket offices. It also controls the refreshment stands, booths and post offices, operates an information headquarters where complimentary passes for expected and unexpected visitors are distributed and supervises the ticket control system in addition to providing for a "flying reserve" to be employed wherever there is a congestion. The control officials collaborate with the police, whose activities are directed from the management centre and for whom headquarters are also necessary. Another task of the management is to control the stadium grounds and if necessary to instruct the public by loud speaker.

The supervision of the stadium grounds also includes that of the parade route in so far as this lies outside the entrance gates, loud speaker equipment being installed here if necessary. An important item is the arrangement of parking facilities, and in this case space must be reserved for general spectators, guests of honour, the press and active participants (in Berlin, 10% of the stadium capacity). These tasks will make it clear, that an elevated observation and control post is highly desirable.

An extremely important factor is the maintenance of close connections between the festival directing staff and the other centres immediately concerned with the success of the presentation. In the case of sporting events, constant communication must be maintained with the referees and active participants. It is advisable to group the dressing rooms of the athletes and the referees and to arrange them so that a division of men and women can be easily made. Three types of dressing room come into consideration: heated ones for winter, a greater number (about 50) for summer, and finally, common rooms for score-keepers, participants in group gymnastics, etc. A storage room of considerable dimensions for equipment should be placed at the main entrance for participants. If the stadium is intended for large festival plays, it is advisable, where possible, to provide four entrances to the arena so that an equal number of entrances and exits are available. The best plan is to construct a covered passageway under the stands for the entire length of the stadium so that processional entrances of any size can be made, depending merely upon the width and length of the passageway. Special control officials must be stationed at these entrances, their task being to collaborate with the festival directing staff in supervising the entering procession.



Assembly and work rooms for photographers and television operators should be placed near the arena, and it is desirable to construct the bases for the television equipment in the architecture of the stadium. The stadium engineer should also have his headquarters near those of the festival directing staff, from which point the loud speaker, lighting, and broadcasting equipment would be controlled. A large stadium involves many problems of acoustics, and for this reason the services of a specialist in this field are advisable during construction. The loud speakers must be adequate for the effective amplification of speeches from the loge of honour, main entrances, arena and in the case of festival plays, from various points in the stands. Arrangements must be made for amplifying recorded music or that of a band or orchestra located in a room under the stadium. On the other hand, it is not always desired to have the source of the music concealed, and for such cases a music stand should be provided from which the sound can be distributed by means of loud speakers or amplified directly from the source. The former is necessary, for example, in the case of free exercises to music when the movements of the participants are in rhythm with the music, while the latter is desirable when music is to originate from a visible source. In the distribution of loud speakers throughout the stadium only those should be utilized which can be accurately regulated in volume, care being taken to include every row of spectators within the range of a loud speaker, since spectators who cannot hear satisfactorily tend to become impatient and restless. In order to provide uniform amplification over a large field, sunken loud speakers were employed at the Hermann Goering Field in Breslau. Such a system is naturally possible only outside the football field itself. As already mentioned, a special loud speaker system is necessary for the stadium grounds inside and outside of the ticket offices, for the parking grounds and for the approach and departure of transportation vehicles.

Effective lighting of the entire stadium and grounds is essential for evening presentations, and in the case of large festival plays the lighting system cannot be too strong and variable for lending the desired artistic effect. It must be possible to illuminate the entire interior of a stadium, to emphasize a particular performance by means of spot lights, or to follow a movement in the stadium. Arrangements should be made so that light can be thrown upon the stands, blended or reduced slowly, and controlled from a central point. The necessary lights in the passageways must be shaded in such a manner that during solemn moments the entire stadium can be darkened.

A recording centre for scores with the necessary multigraphing equipment should be installed by the directing staff for sporting events so that the results can be distributed to the press rapidly and without disturbance. Sound and rainproof cells are necessary for the press, and the important newspapers and particularly news agencies must have direct telephone connections. For the other members of the press a special press post office is desirable as well as work rooms and, if possible, a separate refreshment room. In conjunction with the press, sound-proof cells are essential for radio broadcasting, a technical distribution centre also being necessary under certain circumstances. Whether a telewriting system as a means of avoiding errors in reporting is indispensable for the press depends upon the extent and intensity of the sporting activity.

The arrangement of all these centres of activity in a stadium requires much planning in advance, and it is essential to consider the necessary associations and connections between the different points before the rooms are distributed and equipped. A plan of the "management cluster" should indicate in a general way the most important factors briefly mentioned here.

II.

The development of sporting competitions and training methods has made it essential that training fields be connected with the stadium. As already mentioned, it is necessary to estimate to what extent the stadium is to be used for daily training purposes. In any case, it must be separate from the training fields and it remains to be decided whether the dressing and shower rooms of the stadium shall serve the training fields as well or whether additional facilities are to be provided. A considerable degree of centralization is advisable in the training grounds so that visitors and athletes may enter at a common gate and then be directed along definite routes in order that they will not again come into contact with one another. The more unified the dressing and shower rooms for the entire plant can be made, the more orderly and economical will be their operation. A division must naturally be made for men and women. A practical scheme is to arrange the training fields about centrally located dressing rooms, care being taken not to have the routes used by visitors intersect those leading to and from these quarters. It is also advisable to plan the training fields in such a manner that one or more of them forms a unit which can be set aside for less important sporting competitions. In this case, entrances for participants and spectators, ticket offices, toilets, etc. must be provided.

Second to the principal stadium comes the swimming stadium. It is regarded as a permanent factor in modern physical culture, and the programme of important sporting events such as the Olympic Games reveals that swimming competitions always play an outstanding role. Such swimming facilities are practical only when they can be used by the general public, but they must be provided with separate stands for spectators so that they are adequate for swimming competitions.

According to the principles of modern physical culture, variety in training is desirable, and for this reason those engaged in field sports should be given an opportunity to swim afterwards, and, on the other hand, instead of merely swimming and lying in the sun, visitors to the swimming stadium should also be able to exercise in the playing field and on the track. Here lies one of the main considerations in the planning of such a sporting centre, and it requires careful study by the contractor and architects. Questions that must be answered include that of whether entrance fees are to be charged, what type of control is to be provided, and whether separate facilities for women and children are to be included. All of these are points which, if they are considered in the architectural plans, simplify and reduce the cost of later operation. A sporting centre of this nature also requires a central management post from which the entire grounds can be surveyed, a loud speaker system, and refreshment stands which are open to the participants but closed to the general public.

It has always been found advisable to join the different sporting centres and to connect them by means of wide thoroughfares, but motor traffic should not be permitted within the premises of a sporting centre because both the petrol fumes and noise are disturbing. Numerous American universities have solved this problem by creating a quiet zone with a ban on traffic of all kinds. Such a system naturally requires adequate parking facilities at the entrance, with perhaps a service station for motorists.

A considerable amount of equipment is also necessary for the upkeep of a major sporting centre, this including mowing machines, band rollers, cleaning machines, powered rollers, etc. This then involves a work shop which should be located apart from the other buildings and perhaps joined with the painting, carpentry, welding, gardening and other establishments, as well as a machine shop for the lighting and amplification system, to form a general repair and upkeep centre. Extensive storage rooms must also be provided in addition to the necessary service quarters for the permanent personnel.

A large sporting centre should always possess dormitories so that visiting teams can live cheaply and comfortably at the scene of activity. Between seasons the quarters could be used for participants in training courses. As a last point, restaurant facilities are essential for those engaged in training, and for reasons of economy these should be arranged in such a manner that visitors may also have access to them. It is important, however, that these two groups be separated, and this is possible only when the method of operation has been carefully considered in drawing up the plans.

It will thus be seen that a large sporting centre is an extremely complicated structure requiring careful planning and extensive consideration of numerous factors. The management and operation can be facilitated, however, and the entire plant can serve its purpose more satisfactorily if the countless major and minor problems are solved before the construction work is begun.

“The Infant’s Back”

The two principal aims in physical culture are the attainment of a strong heart and an extended, flexible spinal column. With these constantly in mind, the other important aims are fulfilled automatically, and the field is open for objectives of secondary significance. Every system of physical culture and every programme must be examined in this light, although it should not be regarded as the one and only line of development. These two aims must be retained as a sounding lead which is let down from time to time in order to ascertain the necessary depth.

There are three main stages in physical culture, between the first and fifth, the 15th and 20th, and 35th and 40th years. These are not periods of greatest intensity, but rather protective